

ABSTRACT

A distance image sensor for removing the background light and improving the charge transfer efficiency in a device for measuring the distance to an object by measuring the time-of-flight of the light.

In a distance image sensor for determining the signals of two charge storage nodes which depend on the delay time of the modulated light, a signal by the background light is received from the third charge storage node or the two charge storage nodes in a period when the modulated light does not exist, and is subtracted from the signal which depends on the delay time of the two charge storage nodes, so as to remove the influence of the background. Also by using a buried diode as a photo-detector, and using an MOS gate as gate means, the charge transfer efficiency improves. The charge transfer efficiency is also improved by using a negative feedback amplifier where a capacitor is disposed between the input and output.